Prevalence of induced abortion and associated complications in women attending hospitals in Isfahan

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انتشار الإجهاض المحرَّض والمضاعفات المرافقة له بين مُرْتادات مستشفيات إصفهان، بجمهورية إيران الإسلامية

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الخلاصة: تنجم نسبة كبيرة من وفيات الأمهات عن الإجهاض، ولاسيَّما الإجهاض المحرَّض. وفي هذه الدراسة المستعرضة، تم تحديد معدل انتشار الإجهاض المحرض قبل الحضور للمستشفى وعوامل الاختطار المرتبطة به في 8 مستشفيات للولادة في مدينة إصفهان، بجمهورية إيران الإسلامية، خلال الحقبة 2003 – 2004. وفي مقابلات متكتِّمة مع 417 امرأة ممن راجعنَ المستشفيات بسبب الإجهاض، ذكرت خمسون منهن (أي نسبة 12٪) أن إجهاضهن كان محرَّضاً بشكل غير مشروع. ولوحظ وجود ترابُط يُعْتَدُّ به إحصائياً بين حالات الإجهاض المحرَّض وبين الحمى والصدمة الإنتانية والإجهاض الإنتاني. ومن بين جميع حالات الحمل، كان 35٪ منها غير مرغوب، وتم إنهاء 27.1٪ من هذه الأحمال غير المرغوبة تم إنهاؤها بشكل محرض وغير مشروع. وهكذا فقد كان الحمل غير المرغوب أحد أهم عوامل اختطار الإجهاض المحرَّض (نسبة الأرجحية 8.84، عند فاصلة ثقة 95٪ متراوحة بين 4.36 و17.92).

ABSTRACT A high proportion of maternal deaths are caused by abortion, especially induced abortion. This cross-sectional study determined the prevalence of illegally-induced abortion prior to admittance and its associated risk factors in 8 maternity hospitals in Isfahan, Islamic Republic of Iran, during 2003–04. In confidential interviews with 417 women who attended the hospitals with abortion, 50 (12.0%) reported that it was illegally induced. These abortions had a significant correlation with fever, septic shock and septic abortion. Of all pregnancies, 35.0% were unwanted, and 27.1% of these were illegally-terminated by induced abortions. Unwanted pregnancy was one of the most important risk factors for induced abortion (OR = 8.84, 95% CI: 4.36–17.92).

Prévalence de l'avortement provoqué et de ses complications chez les patientes des hôpitaux d'Ispahan (République islamique d'Iran)

RÉSUMÉ L'avortement, en particulier l'avortement provoqué, est responsable d'un fort pourcentage de la mortalité maternelle. Cette étude transversale a déterminé la prévalence de l'avortement provoqué et des facteurs de risque qui lui sont associés dans 8 maternités d'Ispahan, en République islamique d'Iran, au cours de la période 2003-2004. À l'issue d'entretiens confidentiels avec 417 femmes s'étant présentées à l'hôpital pour avortement, 50 (12,0 %) ont avoué qu'il s'agissait d'un avortement provoqué illégal avant leur admission. Il est apparu une corrélation significative entre ces avortements et la fièvre, le choc septique et l'avortement septique. Sur l'ensemble de ces grossesses, 35,0 % étaient non désirées et 27,1% ont donné lieu à un avortement provoqué illégal. La grossesse non désirée s'est affirmée comme l'un des principaux facteurs de risque d'avortement provoqué (OR : 8,84 ; $IC_{95\,\%}$: 4,36-17,92).

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Introduction

According to World Health Organization (WHO) statistics, every year around 580 000 women die due to the complications of pregnancy and delivery [*1*]. WHO has estimated that on average an annual rate of around 27 million legal and 19 million illegal abortions took place throughout the world during 2000 [*2*].

There is an annual rate of around 50 million abortions worldwide, one-third of which are unsafe [*1,3*]. In developed countries such as Sweden deaths related to abortion accounted for 20% of all maternal mortality between 1931 and 1980 [*4*]. On the other hand, in developing countries such as Burkina Faso, one of the most frequent causes of maternal death were related to illegal abortions (30%), in the year 1995 [*5*].

In 1999, WHO announced that around 25%–50% of maternal deaths were caused by illegal abortion [*1*]. It also reported that 25% of maternal deaths due to illegally-induced abortion take place in developing countries [*6*].

The maternal mortality rate due to unsafe abortion in Africa and South and South-East Asia, and Latin America is 680, 283 and 119 per 100 000 abortions, respectively [*7*]. In America, the death rate for illegal abortion is less than 0.6 per 100 000. Such low rates are also seen in other countries where abortion is performed legally (Canada 0.1, Holland 0.2, England and Wales 0.4, Denmark 0.5, Finland 0.7 and Scotland 0.1 per 100 000 legal abortions) [*7*]. In many countries, the complications of unsafe or illegal abortion account for most deaths in young women. In Nigeria, for example, 72% of deaths in women below age 19 years are due to the complications of illegal abortion [*8*]. In another WHO report, the geographical and regional death rates due to illegal abortion have been estimated to be around 13% in Africa, 12% in Asia, 21% in Latin America and 17% in East Europe [*9*].

For every death due to illegally-induced abortion, 30 women will develop an infection or disability. Overall the total number of women who develop such complications is 300 million, of which more than a quarter are in developing countries [*10*].

In the Islamic Republic of Iran, the law permits abortion to be performed only in certain cases, such as thalassaemia, Down syndrome, neural tube defects etc. Therefore abortion is illegal if it is performed in the absence of legal indications, such as when the pregnancy is unwanted. In the year 2000, in the city of Mashad, a study estimated that 21% of all pregnancies were unwanted, and illegally-induced abortion was performed for 21% of them [*11*]. In a study in Tehran of cases of septic abortion (a complication of illegally-induced abortion), 46.4% of women had not used any method of contraception and 26% had used the rhythm or calendar method (periodic abstinence). Mothers who had had an illegally-induced abortion stated that repeated pregnancies, large number of children, poverty and unavailability of contraceptive devices were the main reasons [*12*]. Each illegally-induced and septic abortion costs more than US$ 223 per household and is a financial burden to the health authorities of that country [*6*]. Considering that illegally-induced abortions almost always result in septic abortion and that they are a threat to the mother's health, and since it is the fifth most common cause of maternal death throughout the world, this is an important issue to research [*6*].

The aims of this study were to estimate the prevalence of illegal abortion and associated risk factors for complications of abortion among women who attended hospitals in Isfahan due to abortion.

Methods

This cross-sectional study was performed from 1 May to 29 December 2003 in 8 hospitals in Isfahan (including teaching hospitals, private hospitals, social security hospitals and charity hospitals). A list of all hospitals with maternity or obstetrics departments was obtained and those with a delivery rate of less than 5 per week were excluded from the list. Based on the WHO estimate that the prevalence of abortion in developing countries was around 60% in 1999 [*1*], we calculated our sample size to be 417 cases. The women were selected by sequential sampling and the inclusion criteria were a pregnancy of less than 20 weeks duration and definite diagnosis of abortion by a physician.

For each woman data about the pregnancy and how it had ended and her clinical symptoms were collected by confidential interviews and use of medical records by trained midwives. In order to establish if the abortion was illegal or not, our trained interviewers (midwives) counselled the mother before completing the questionnaire by reassuring her that her case would not be followed by legal means, even if illegal abortion had been performed.

After completing a questionnaire, the data were coded and entered into a computer. The chi-squared test and Fisher exact tests were used to find the odds ratio (OR) of the risk factors for complications of abortion, such as fever, shock, abnormal vaginal discharge and infection.

Results

The study group comprised 417 women who attended the hospitals due to abortion (spontaneous or illegally-induced). The women were aged 15–50 years, with a mean age of 27.2 years [standard deviation (SD) 6.2]. The overall mean number of previous pregnancies, deliveries and abortions was 2.5 (SD 1.5), 1.1 (SD 1.2) and 1.3 (SD 0.7) respectively and the mean interval between the previous and the current pregnancy was 38.3 months (SD 43.2) (Table 1). Of these women, 28.8% were either illiterate or had primary-school education and 54.5% had secondary or high-school education; only 11.3% had university education. Most were

Table 1 **Demographic data of women with abortion in Isfahan, Islamic Republic of Iran**

Variable	Total no. of cases	Minimum	Maximum	Mean	SD
Age (years)	417	15	50	27.17	6.22
No. of pregnancies	417	–	15	2.49	1.57
No. of deliveries	417	–	7	1.12	1.26
No. of abortions	417	–	6	1.37	0.81
No. of children	416	–	7	1.06	1.22
Interval between current and previous pregnancies (months)	417	–	216	38.30	43.95

SD = standard deviation.

housewives (83%) and 17% were working mothers.

A total of 50 women (12.0%) reported that the abortion was illegally induced (95% CI: 5%–9%). The rate of complications was compared between women with spontaneous abortion and those with illegally-induced abortion (Table 2). The rate of fever was higher among women with illegally-induced abortion (12.0%) compared to cases with spontaneous abortion (2.7%). Regression analysis showed that the risk of developing fever in induced abortion was 4.86 times that of spontaneous abortion (OR = 4.86, 95% CI: 1.68–14.04).

Abnormal vaginal discharge was recorded for 13% and 18% of subjects with spontaneous and induced abortion respectively. However, this difference was not statistically significant. This relationship might have become significant if the number of cases with illegally-induced abortion were higher. However, this difference of 5% was clearly medically significant.

Table 2 also shows that 0.6% and 6.0% of women with spontaneous abortion and

Table 2 **Frequency distribution and relative frequency of fever, abnormal vaginal discharge, shock, septic abortion unwanted pregnancies in women with abortion in Isfahan, Islamic Republic of Iran**

Variable	Spontaneous abortion		Illegally-induced abortion		Total		Crude odds ratio	95% CI
	No.	%	No.	%	No.	%		
Fever								
No	357	97.3	44	88.0	401	99.2		
Yes	10	2.7	6	12.0	16	0.8	4.86	1.68–14.04
			P > 0.05					
Abnormal vaginal discharge								
No	319	86.9	41	82.0	360	86.5		
Yes	48	13.0	9	18.0	57	13.5	1.46	0.62 – 3.36
			P > 0.05					
Septic shock								
No	365	99.4	47	94.0	412	98.8		
Yes	2	0.6	3	6.0	5	1.1	11.64	1.89–71.52
	Fisher exact test,		***P*** < 0.014					
Septic abortion								
No	257	70.0	27	54.0	284	68.1		
Yes	110	29.9	23	46.0	133	31.9	1.90	1.09–3.63
			P < 0.02					
Pregnancy wanted								
Wanted	262	71.4	11	22.0	273	65.5		
Unwanted	105	28.6	39	78.0	144	34.5	8.84	4.36–17.93
			P < 0.0001					
Total	367	100.0	50	100.0	417	100.0		

CI = confidence interval.

illegally-induced abortion suffered septic shock. The risk of developing shock in induced abortion was 11.64 times that of spontaneous abortion (OR = 11.64, 95% CI: 1.89–71.52). Among women with spontaneous abortion, 29.9% were septic abortions. However, this figure was higher (46.0%) in cases with illegally-induced abortion (Table 2). Using the chi-squared test and OR index it is seen that illegally-induced abortion has a significant relation with septic abortion: the risk is twice that of spontaneous abortion (OR = 1.90, 95% CI: 1.09–3.63).

Among the 417 women suffering abortion in our study, 144 (34.5%) had unwanted pregnancies. However, among the women with spontaneous abortion 28.6% had unwanted pregnancies compared with 78.0% of women with illegally-induced abortions (Table 2), indicating an almost 9 times greater chance of unwanted pregnancy in women with induced abortion (OR = 8.84, 95% CI: 4.36–17.93).

In the next stage, data were processed and analysed to determine the risk factors for abortion. Variables such as age, literacy, number of children, number of wanted or unwanted pregnancies, and the use of contraception were assessed. The results showed that the only factor that had a significant relationship with abortion was unwanted pregnancy.

A high proportion of the 50 women with induced abortion (40%) stated that they had not attended any family planning sessions at a clinic. Of the 144 women with unwanted pregnancy 50% had used traditional contraceptive methods, 25% intrauterine device and condom and 21% oral contraceptives (4% unknown methods).

Discussion

It is natural for a percentage of pregnancies to lead to spontaneous abortion. However, maternal death or irreversible complications of abortion in fertile women are usually caused by illegally-induced abortion. The most common reason for illegally-induced abortion is unwanted pregnancy. Of the women in our study having illegal abortions, only 78% claimed the pregnancy was unwanted; the reminder may have faced economic, social or family problems that forced them to induce abortion.

In a the year 2000, a retrospective study in the Islamic Republic of Iran on women who had an abortion showed that unwanted pregnancies were the most common causes of illegally-induced abortion, and that a large number (72%) of these women had become pregnant while practising contraception, which indicates that their knowledge about how to use contraception was inadequate [*12*]. In a study in 1997 in Zimbabwe, it was seen that incorrect use of family planning played a major role in illegally-induced abortion [*13*]. In another study performed by the National Research Center of Population Growth of America, the main cause of unwanted pregnancy, which ultimately led to illegally-induced abortion, was failure in contraceptive use [*14*].

In the current study, most of the women with unwanted pregnancy had used contraceptive methods. The occurrence of pregnancy while practising contraception is a way of assessing the success rate of family planning programmes. Many of the women with induced abortion said that they had not attended any family planning sessions at a clinic, which means that they probably did not get adequate information or instruction about how to use family planning methods. Although family planning coverage in the Islamic Republic of Iran is relatively good [Iranian Ministry of Health report, 2002], many couples still use traditional methods of contraception. On the other hand, people are not always aware about the correct

method or duration of use for each type of contraception [Iranian Ministry of Health report, 2002], which suggests that better family planning counselling is needed. Our results are aimed at informing the Iranian health authorities about the need to improve the quality and efficiency of family planning counselling.

Illegally-induced abortion is usually associated with complications such as septic shock, septic abortion, abnormal vaginal discharge and fever, which occur as a result of performing the abortion in unsterile conditions and using sharp or pointed objects such as knitting needles or the point of a feather, which in many cases leads to uterine rupture, infection, septic shock and death. In our women, illegally-induced abortion had a significant relationship with fever, shock and septic abortion. Furthermore, 30% of abortions classified as spontaneous were also septic in type, which could be explained by late attendance at hospital due to lack of awareness about the danger, inadequate care by health and treatment centres or a desire to conceal an illegally-induced abortion. Certainly it is likely that a number of mothers classified in this study with spontaneous abortion were unwilling to admit to having an illegal abortion.

Although symptoms of abnormal vaginal discharge were not associated with illegally-induced abortion, the difference was medically important. In a study performed on abortion during the year 2000, infection was seen in 51% of illegally-induced abortions. The 1997 WHO report stated that of the 53 million pregnancies which had resulted in induced abortion, one-third of the abortions had been performed in unsafe and unsterile conditions [*1*]. Another study performed in 1999 showed that the dangerous complications of illegally-induced abortion include uterine rupture, infection, peritonitis and shock [*1*]. Even if the complications of induced abortion do not end in death, the outcome may be in the form of long-term complications and lesions, from which the women will suffer for many years.

One deficiency of this study was that it did not include mothers having abortion who never attended any hospital or who attended hospitals other than those in our study. It is also likely that the study underestimated the number of cases of induced illegal abortion if a mother denied this and was entered in the spontaneous abortion group. Nevertheless, the results show that unwanted pregnancy is the most important risk factor leading to illegally-induced abortion. This is an indicator of the success rate of family planning programmes in the Islamic Republic of Iran and of the need to improve the health of women, thereby improving the health of the community as a whole.

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